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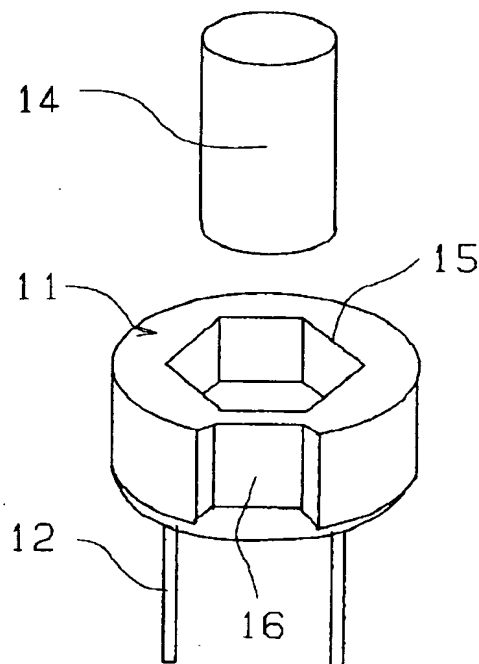
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(54) 【発明の名称】 コイル装置

(57) 【要約】

【課題】 ベースと棒状コアが強固に装着され、かつ、接着剤がベース上面・棒状コア部及び配線溝へのはみ出しを少なくし、コイルの巻線に支障を与えることの無いことを可能にしたコイル装置を提供することにある。

【解決手段】 端子ピンを植設したベースの上面に凹部を設け、凹部形状は、丸棒コアとほぼ同じ内径の多角形とし、丸棒コアが凹部に接着され、丸棒コアに巻かれたコイルのリードを端子ピンに接続したものである。



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【特許請求の範囲】

【請求項1】 端子ピンを植設したベースに、丸棒コアが装着され、丸棒コアに巻かれたコイルのリードを端子ピンに接続したコイル装置において、該ベースの上面に凹部を設け、該凹部形状は、該丸棒コアとほぼ同じ内径の多角形とし、該丸棒コアが該凹部に接着されたことを特徴とするコイル装置。

【請求項2】 該凹部形状は、底面側を該丸棒コアとほぼ同じ形状とし、かつその上側を該丸棒コアとほぼ同じ内径の多角形とし、境界部に段差を付けた請求項1記載のコイル装置。

【請求項3】 該凹部形状は、底面側を該丸棒コアとほぼ同じ内径の多角形とし、かつその上側を該多角形の外径と同じ円形状とし、境界部に段差を付けた請求項1記載のコイル装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、各種の電子機器に用いられ、端子ピンが植設したベースに、丸棒コアを装着したコイル装置の構造に関する。

【0002】

【従来の技術】図3、図4は、従来のコイル装置の斜視図および正面断面図を示している。従来のコイル装置は、合成樹脂からなるベース31の底面に端子ピン32を植設してある。ベース31の上面には、棒状コアと同じ形状の凹部35を設けている。このベース31の凹部35の底面に、接着剤39を塗布して棒状コア36を接着している。そして、棒状コア36に巻かれたコイル37のリード38を配線溝33を通し、所定の端子ピン32に絡げ、半田で接続している。

【0003】このように形成されたコイル装置は、ベース31と棒状コア36を接着する接着剤39が少ない場合、ベース31と棒状コア36の接着強度が弱く、棒状コア36がベース31から取れやすいという問題があった。そこで、この種のコイル装置は、棒状コア36をベース31に強固に装着するため、凹部35の底面に接着剤39を少し多めに塗布している。しかし、凹部35の底面に塗布される接着剤39が多すぎる場合は、棒状コア36を装着する際に、接着剤39がベース31の上面から溢れ出して棒状コア36の付け根および配線溝33にはみ出して固化した。このため、コイル37の巻線が整列に巻けない、又は巻線が崩れるために断線してしまうという問題があった。また、接着剤が配線溝33に流れ出すことよりコイル37のリード38がベース31の外形よりはみ出し、コイル装置の基板搭載時等の取り扱いにより断線させてしまうという問題があった。

【0004】

【発明が解決しようとする課題】本発明の課題は、ベースと棒状コアが強固に装着され、かつ、接着剤がベース上面・棒状コア部及び配線溝へのはみ出しを少なくし、

コイルの巻線に支障を与えることの無いようにしたコイル装置を提供することにある。また、本発明の別の課題は、コイル装置の使用にあたって、基板搭載時の取り扱いを容易にすることである。

【0005】

【課題を解決するための手段】本発明のコイル装置は、端子ピンを植設したベースの上面に凹部を設け、凹部形状は、丸棒コアとほぼ同じ内径の多角形とし、丸棒コアが凹部に接着され、丸棒コアに巻かれたコイルのリードを端子ピンに接続したものである。さらに、凹部形状は、底面側を丸棒コアとほぼ同じ形状とし、かつその上側を丸棒コアとほぼ同じ内径の多角形にしたり、または、底面側を丸棒コアとほぼ同じ内径の多角形とし、かつその上側を多角形の外径と同じ円形状にし、途中の境界部に段差を形成したりしたものである。

【0006】

【発明の実施の形態】本発明のコイル装置は、丸棒コアが接着される凹部形状を、接着剤が棒状コアの周りに均一に溜まるように多角形としている。従って、棒状コアの位置決めは多角形の内径で行ない、余分な接着剤は多角形の角部に溜まる。多角形の角部の溜まり量を設定することにより、従来の様に、ベース上面にはみ出すことの無いよう、接着剤の量を容易に設定できる。

【0007】

【実施例】以下、本発明のコイル装置の実施例を示す図1および図2を参照しながら説明する。図1は本発明の実施例を示す分解斜視図、図2は図1の平面図である。図1、2において、11はベース、12は端子ピン、14は丸棒コア、15は凹部である。本実施例では凹部形状に六角形を用いて説明する。ベース11は、合成樹脂を用いて丸形に形成し、端子ピン12を植設している。ベース11の上面の中央に凹部15が設けられている。棒状コア14は、断面が円形に形成されている。この棒状コア14の大きさと凹部15の六角形の内径はほぼ同じにしてある。このベース11の凹部15の底面に接着剤が塗布され、棒状コア14を挿入すると、接着剤17は棒状コア14と凹部15の六角形の径部間の隙間に流れ込み(17a毛管現象による)、残りの接着剤は凹部15の六角形の角部に溜まる(17b)。接着剤の量の調整は凹部15の角部の接着剤溜まり状態(17b)で調整をする。そして、棒状コア14に巻かれたコイルのリード(図示せず)は配線溝16を通り、所定の端子ピン12に絡げられ、半田で接続される。このコイル装置は、端子ピン12が回路基板に接続される。

【0008】この様に、本発明のコイル装置の実施例を述べたが、本発明はこれらの実施例に限られるものではない。例えば、凹部の形状は、底面側が棒状コアとほぼ同じ形状とし、上側を棒状コアとほぼ同じ内径の多角形とし、上下境界部分に段差を形成したもの。また、逆に、底面側を丸棒コアとほぼ同じ内径の多角形とし、上

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側を多角形の外径と同じ円形状として、段差を形成した位置から接着剤の余剰分が外に出ないようにしてもよい。

【0009】

【発明の効果】以上述べたような本発明のコイル装置は、ベースに設けられた多角形の凹部で余分な接着剤をベースの外に溢れさせることなく、目的の接着剤量により棒状コアとベースを強固に装着され、かつ、接着剤のはみ出しを防止することで、コイルの巻線異常を発生させたり、及びコイルのリードを配線溝よりはみ出すこと

なく端子ピンに絡げられる。

【図面の簡単な説明】

*【図1】 本発明のコイル装置の実施例を示す分解斜視図である。

【図2】 図1の平面図である

【図3】 従来のコイル装置の斜視図である。

【図4】 図3の正面断面図である。

【符号の説明】

11 ベース

12 端子ピン

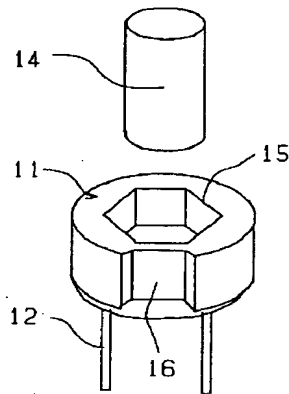
14 棒状コア

15 凹部

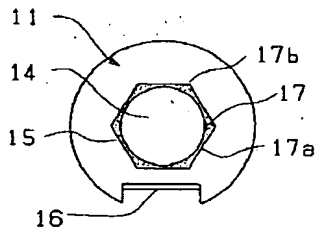
16 配線溝

* 17 接着剤

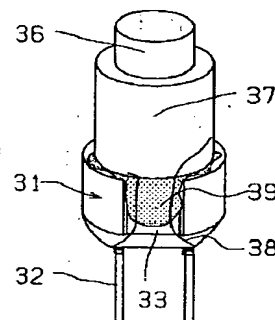
【図1】



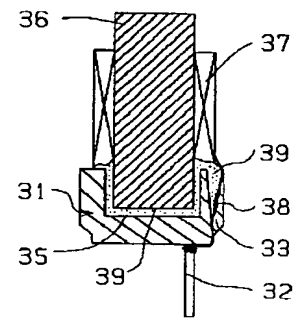
【図2】



【図3】



【図4】



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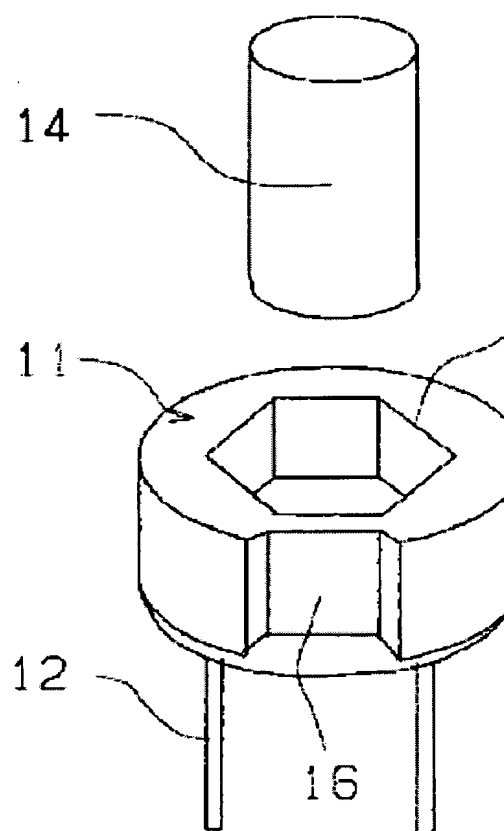
COIL DEVICE

Patent number: JP2000294427
Publication date: 2000-10-20
Inventor: SHIMIZU SADA AKI
Applicant: TOKO INC
Classification:
- international: H01F27/06
- european:
Application number: JP19990098490
Priority number(s):

Abstract of JP2000294427

PROBLEM TO BE SOLVED: To reduce leakage of bonding agent not to interfere with a coil wiring by providing a recess on an upper surface of a base, by making the recess from to be a polygon having about the same internal diameter as a round bar coil, by contacting the round bar coil with the recess and by functioning coil leads wound on the round bar being bonded with terminal pins.

SOLUTION: A base 11 is molded as a round shape and terminal pins 17 are planted. A recess 15 is provided at the center of the upper surface of the base 11. A section of a bar shape core 14 is molded in a round shape, and the size of the bar shape core 14 is made as about the same as a hexagonal internal diameter of the recess 15. Bonding agent is applied on the bottom surface of the recess 15 of the base 11, when the bar shape core is inserted, the bonding agent flows into space between the bar shape core 14 and the hexagonal internal diameter part of the recess 15, and the remaining bonding agent is stored at the hexagonal angle part of the recess 15 (17b). Additionally, coil leads wound on the bar shape core 14 are introduced through a wiring trench 16, are entwined around the terminal pins 12 and are bonded by solder.



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[Claim(s)]

[Claim 1] It is the coil system which the base which implanted the terminal pin is equipped with a round bar core, and establishes a crevice in the top face of this base in the coil system which connected to the terminal pin the lead of the coil wound around the round bar core, makes this crevice configuration the polygon of the almost same bore as this round bar core, and is characterized by this round bar core pasting up in this crevice.

[Claim 2] This crevice configuration is the coil system according to claim 1 which made the base side the almost same configuration as this round bar core, and made the bottom the polygon of the almost same bore as this round bar core, and distinguished between the boundary section.

[Claim 3] This crevice configuration is the coil system according to claim 1 which made the base side the polygon of the almost same bore as this round bar core, and made the bottom the same circle configuration as the outer diameter of this polygon, and distinguished between the boundary section.

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is used for various kinds of electronic equipment, and relates to the structure of a coil system where the base which the terminal pin implanted was equipped with the round bar core.

[0002]

[Description of the Prior Art] Drawing 3 and drawing 4 show the conventional perspective view and conventional transverse-plane sectional view of a coil system. The conventional coil system has implanted the terminal pin 32 in the base of the base 31 which consists of synthetic resin. The crevice 35 of the same configuration as a cylindrical core is established in the top face of the base 31. Adhesives 39 were applied to the base of the crevice 35 of this base 31, and the cylindrical core 36 is pasted up on it. And the wiring gutter 33 was tucked up at through and the predetermined terminal pin 32, and the lead 38 of the coil 37 wound around the cylindrical core 36 is connected with solder.

[0003] Thus, the formed coil system had the problem that the bond strength of the base 31 and the cylindrical core 36 was weak, and it could be easy to take the cylindrical core 36 from the base 31, when there were few adhesives 39 on which the base 31 and the cylindrical core 36 are pasted up. Then, this kind of coil system has applied somewhat more adhesives 39 to the base of a crevice 35 in order to equip the base 31 with the cylindrical core 36 firmly. However, when there were too many adhesives 39 applied to the base of a crevice 35 and it equipped with the cylindrical core 36, it overflowed from the top face of the base 31, and adhesives 39 overflowed into the root and the wiring gutter 33 of the cylindrical core 36, and solidified. For this reason,

there was a problem of the coil of a coil 37 being unable to wind around alignment, or disconnecting since a coil collapses. Moreover, there was a problem of the lead 38 of a coil 37 making it disconnect [flow / into a wiring gutter 33 / adhesives] by the handling at the time of substrate loading of a flash and a coil system etc. from the appearance of the base 31.

[0004]

[Problem(s) to be Solved by the Invention] It is firmly equipped with the base and a cylindrical core, and adhesives lessen the flash to a base top face, the cylindrical core section, and a wiring gutter, and the technical problem of this invention is to offer the coil system it was made not to give trouble to the coil of a coil. Moreover, another technical problem of this invention is making easy the handling at the time of substrate loading in use of a coil system.

[0005]

[Means for Solving the Problem] It establishes a crevice in the top face of the base which implanted the terminal pin, and the coil system of this invention makes a crevice configuration the polygon of the almost same bore as a round bar core, and a round bar core pastes a crevice and it connects to a terminal pin the lead of the coil wound around the round bar core. Furthermore, the bottom is made into the polygon of the almost same bore as a round bar core, or a crevice configuration makes a base side the almost same configuration as a round bar core, makes a base side the polygon of the almost same bore as a round bar core, and makes the bottom the same circle configuration as a polygonal outer diameter, and forms a level difference in the intermediate boundary section.

[0006]

[Embodiment of the Invention] The coil system of this invention makes the polygon the crevice configuration which a round bar core pastes up so that adhesives may collect on the surroundings of a cylindrical core at homogeneity. Therefore, positioning of a cylindrical core is performed with a polygonal bore, and excessive adhesives collect on a polygonal corner. By a polygonal corner's collecting and setting up an amount, like the former, the amount of adhesives can be easily set up so that it may not overflow into a base top face.

[0007]

[Example] It explains referring to drawing 1 and drawing 2 which show the example of the coil system of this invention hereafter. The decomposition perspective view in which drawing 1 shows the example of this invention, and drawing 2 are the top views of drawing 1 . For 11, as for a terminal pin and 14, in drawing 1 and 2, the base and 12 are [a round bar core and 15] crevices. This example uses and explains six square shapes to a crevice configuration. The base 11 is formed in a round shape using synthetic resin, and is implanting the terminal pin 12. The crevice 15 is formed in the center of the top face of the base 11. As for the cylindrical core 14, the cross section is fabricated circularly. The magnitude of this cylindrical core 14 and the bore

of six square shapes of a crevice 15 are made almost the same. If adhesives are applied to the base of the crevice 15 of this base 11 and the cylindrical core 14 is inserted, adhesives 17 will flow into the clearance between the bore sections of six square shapes of the cylindrical core 14 and a crevice 15 (based on 17a capillarity), and the remaining adhesives will collect on the corner of six square shapes of a crevice 15 (17b). Adjustment of the amount of adhesives adjusts in the state of adhesives ***** of the corner of a crevice 15 (17b). And the lead (not shown) of the coil wound around the cylindrical core 14 passes along a wiring gutter 16, is tucked up by the predetermined terminal pin 12, and is connected with solder. As for this coil system, the terminal pin 12 is connected to the circuit board.

[0008] Thus, although the example of the coil system of this invention was described, this invention is not restricted to these examples. For example, the configuration of a crevice is that by which the base side considered as the almost same configuration as a cylindrical core, made the bottom the polygon of the almost same bore as a cylindrical core, and formed the level difference in the vertical boundary part. Moreover, a base side is made into the polygon of the almost same bore as a round bar core, and you may make it the amount of [of adhesives] surplus not come out of the bottom outside from the location in which the level difference was formed, as the same circle configuration as a polygonal outer diameter conversely.

[0009]

[Effect of the Invention] The coil system of this invention which was described above is being firmly equipped with a cylindrical core and the base with the target amount of adhesives, and preventing the flash of adhesives, without flooding excessive adhesives out of the base in the polygonal crevice established in the base, and it is tucked up by the terminal pin, without generating the abnormalities in a coil of a coil and protruding the lead of a coil from a wiring gutter.

[Brief Description of the Drawings]

[Drawing 1] It is the decomposition perspective view showing the example of the coil system of this invention.

[Drawing 2] It is the top view of drawing 1 .

[Drawing 3] It is the perspective view of the conventional coil system.

[Drawing 4] It is the transverse-plane sectional view of drawing 3 .

[Description of Notations]

11 Base 12 Terminal Pin

14 Cylindrical Core

15 Crevice

16 Wiring Gutter

17 Adhesives

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